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November 28, 2018

Mr. Raymond P. Ciranna  
General Manager  
City of Los Angeles Fire and Police Pension Plan  
701 East 3<sup>rd</sup> Street, Suite 200  
Los Angeles, CA 90013

**Re: Los Angeles Department of Fire and Police Pensions (LAFPP)  
Deferred Retirement Option Plan (DROP) Cost Neutrality Study**

Dear Ray:

As outlined in our proposal dated June 20, 2018 submitted to LAFPP and agreed to by the City, we have analyzed the actuarial experience for LAFPP as of June 30, 2017 with respect to the cost of providing benefits under the DROP program. We have included a “prospective” analysis of active members reported in the June 30, 2017 valuation who had never signed up for the DROP. We have also included a separate “retrospective” analysis of all members who have participated in the DROP since inception and were still receiving pension benefits as of June 30, 2017. This retrospective analysis covered both members who exited (i.e. retired from) the DROP before June 30, 2017 as well as members who entered the DROP but were not yet retired as of June 30, 2017.

The results in this study have been prepared to allow the City and the bargaining groups to evaluate the cost neutrality aspect of the DROP program in accordance with Section 4.2100 of the Administrative Code.

**SUMMARY OF CONCLUSIONS**

The cost neutrality of the DROP can be analyzed in two very different ways. A prospective analysis looks at the expected cost for members who have not yet signed up for the program, while a retrospective analysis looks at actual experience for members who had previously signed up for the program. In addition, the results under the retrospective analysis are heavily dependent on whether actual or expected salary increases are used in the analysis.

**Is the DROP cost neutral?**

- The DROP is expected to be cost neutral under the prospective analysis, if members are retiring later than they would have without the DROP.

- The DROP was determined to have been cost neutral under the retrospective analysis with assumed salary increases.
- The DROP was determined not to have been cost neutral under the retrospective analysis with actual salary increases.

Based on the assumptions described below, we have determined that when using a “prospective” approach the adjusted present value of benefits for active members in LAFPP with the DROP is within 2% of the corresponding value without the DROP, assuming that members would have retired between one and three years earlier if the DROP were not in place.

Under the retrospective analysis, the costs with and without the DROP program are calculated with respect to members who actually signed up for the DROP program. Under one variation of the retrospective analysis, the comparison would be made only with respect to those members who have subsequently retired from the Plan<sup>1</sup> while under another variation, all DROP members would be included, whether or not they have since retired from the Plan<sup>2</sup>.

An important factor in this retrospective analysis is that, as a result of the 2008 recession and other budgetary constraints, the actual salary increases granted to active members as observed in the ongoing actuarial valuations for several years after the 2008 recession (2009 – 2016) were mostly less than projected by the actuarial assumptions. Forgoing benefit increases due to any possible future salary increase is an important DROP plan design to help maintain cost neutrality of the DROP. For that reason, we have applied the “retrospective” analysis for members who actually signed up for the DROP using two alternative scenarios for salary increases without the DROP.

The assumed salary increases scenario uses assumptions consistent with those applied in the June 30, 2017 valuation to project salaries for the members from their date of DROP entry to their assumed retirement date, which for this study is between one and three years earlier than if the DROP were not in place. Under this scenario, our analysis shows there would be an increase in the adjusted present value of benefits of less than 2% as a result of the DROP.

However, under the alternative scenario using the actual salary increases granted for the members from their date of DROP entry to their assumed retirement date, which again is between one and three years earlier than if the DROP were not in place, there would be an increase in the adjusted present value of benefits of between 1% to 7% as a result of the DROP.

Please note that, for the purpose of measuring the cost neutrality of the DROP for future entrants to the program after June 30, 2017, we believe it is reasonable to use the “prospective” approach as presented in this report. As noted above and discussed below, the adjusted present value of

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<sup>1</sup> On a cumulative basis, there are 3,421 members who elected the DROP and have since retired from the Plan as of June 30, 2017 and were still collecting pension benefits.

<sup>2</sup> In addition to the 3,421 DROP members described above, there were a total of 1,303 members who have elected the DROP but have not yet retired from the Plan as of June 30, 2017.

benefits for active members in the LAFPP Plan with the DROP is within 2% of the corresponding value for the LAFPP Plan without the DROP, assuming that members would have retired between one and three years earlier if the DROP were not in place. For that reason, we believe it is reasonable to conclude that the DROP is cost neutral under the assumption that the DROP continues to affect and delay the members' decision as to when to retire.

*Modifications to the DROP Currently Being Considered by the City*

In preparing this report, we have not taken into account modifications that are currently being considered by the City to limit monthly DROP payments for any member entering DROP on or after January 1, 2019 if the member is not on active duty status for a minimum of 112 hours during the month. The cost savings to the City together with a detailed discussion of the modifications were provided in our report dated October 4, 2018. If those modifications are adopted by the City, we would expect under the prospective approach that the cost of the LAFPP with the DROP to be closer to the cost of the LAFPP without the DROP under the scenario that members are retiring one year later with the DROP than they would have without the DROP. In the other scenarios where members are retiring two or three years later with the DROP, the modifications increase the savings compared to the cost of LAFPP without the DROP.

However, as we also pointed out in our October 4, 2018 report, some active employees might accelerate their decision to sign up for the DROP before the effective date of the proposed changes (i.e., as early as January 1, 2019). If that were to happen, there could be some short-term actuarial losses if those employees sign up for the DROP earlier than expected by the retirement rates assumed in our valuations.

## **BACKGROUND**

In 2001, voters approved a Los Angeles City Charter amendment to allow members in LAFPP to participate in a DROP program. Beginning in May 2002, eligible members could participate in DROP for a period of up to five years.

Upon electing DROP, an active member's pension benefit would be frozen (except for an annual cost-of-living adjustment similar to that payable to retirees) and the pension benefit would be credited on a monthly basis into a bookkeeping account maintained for that active member. The bookkeeping account would be credited with interest at 5% per year and the final balance is available in a lump sum and payable to the member in addition to the pension benefit at the time of exit from the DROP and retirement from the City.

The City of Los Angeles Administrative Code requires that an actuarial study of the DROP program be completed at least every five years.

As a part of this study, we used demographic data for active members who were reported in the June 30, 2017 valuation and who had never elected the DROP as of that date. This is the same as

the prospective approach previously used by Segal in 2012<sup>3</sup> and 2007<sup>4</sup> and by LAFPP's prior actuary in 2004<sup>5</sup> and 2000<sup>6</sup> in evaluating the value of LAFPP pension benefits with and without the DROP program so as to address the question of cost neutrality of the DROP.

In addition to that prospective analysis, we also performed a retrospective analysis of members actually participating in the DROP. It was requested by the City that Segal perform this retrospective analysis using those DROP members who had exited from the DROP before June 30, 2017 and were still receiving pension benefits as of June 30, 2017 as well as those who are currently in the DROP. We received salary and service information from LAFPP as of the DROP entry and DROP exit date for those who had already exited the DROP.

## **SCOPE OF WORK**

Consistent with prior actuarial studies on the DROP, our review is limited to the analysis of the cost of providing LAFPP pension benefits with and without the DROP. We have not analyzed any possible impact of the DROP program on any other non-pension benefits or costs, such as the retention of experienced police and fire employees relative to the training of new employees, the relative cost or savings of providing health benefits (both before and after the date of retirement), any impact on the City Workers' Compensation program, disability benefits offered through LAFPP, and/or the cost of administrating the DROP.

Furthermore, we have not analyzed any potential cost associated with active members becoming eligible for the Injury on Duty (IOD) program after they are enrolled in the DROP. We understand that analysis will be conducted by the CAO.

## **METHOD USED FOR EVALUATING COST NEUTRALITY**

A DROP program may provide an incentive for a member to remain in City service longer, depending on when a member signs up for the DROP and how long the member stays in the DROP. These decisions made by the member may change the total present value of benefits paid by the plan, as well as the allocation of that present value of benefits between service already rendered by the member (i.e., actuarial accrued liability) and future service (i.e., future normal cost).

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<sup>3</sup> The analysis was provided in our letter dated February 28, 2014 using assumptions, membership data, etc. as of June 30, 2012.

<sup>4</sup> The analysis was provided in our letter dated January 9, 2008 using assumptions, membership data, etc. as of June 30, 2007.

<sup>5</sup> The analysis was provided in the prior actuary's report dated March 23, 2005 using assumptions, membership data, etc. as of June 30, 2004.

<sup>6</sup> The analysis was provided in the prior actuary's report dated October 22, 2001 using assumptions, membership data, etc. as of June 30, 2000.

To measure the cost of the DROP program, we compared the present value of pension benefits with the DROP to the present value of pension benefits without the DROP. Since employees who have not reached the service cap are required to make member contributions into the plan even after electing the DROP, the present values without the DROP are adjusted for member contributions that would not be paid (for either one, two or three years) due to the assumed earlier retirements, as discussed later in this study. This is referred to as the adjusted present value of pension benefits throughout the study. It should be noted that the condition for either one or two years earlier retirements were included in the cost neutrality studies in 2000, 2004, 2007 and 2012. The condition of three years earlier retirements was added to this year's study as requested by the City.

In the prior cost neutrality studies, the present values were calculated net of the projected member contributions expected to be made after the date of those studies. The DROP was deemed cost neutral in the 2000, 2004, 2007, and 2012 cost neutrality studies when the difference between the two net present values was within 2%. We believe that this measurement is reasonable and have continued to use the 2% threshold for this study.

The analysis provided in the rest of this report includes discussion of the adjusted present value method, the assumptions used, and the results associated with measuring the adjusted present value of LAFPP pension benefits with the DROP and without the DROP. While similar, these methods are discussed separately for the prospective and the retrospective methods.

## **EVALUATING COST NEUTRALITY USING THE PROSPECTIVE APPROACH**

For the prospective study, we determined the impact of the DROP on the adjusted present value of pension benefits for the 12,024 active members who were included in the June 30, 2017 valuation and who had never elected DROP as of that date. We used the demographic data for these members as reported in the June 30, 2017 valuation data.

### *Method and Assumptions Used to Measure the Adjusted Present Value with the DROP*

We utilized the current retirement rate assumptions that were recommended and adopted from our most recent Triennial Experience Study as of June 30, 2016. These rates were developed from the combined experience of members who retired after they exited the DROP and those members who never participated in the DROP during the study period. Based on that study, we assumed a 95% probability that the member will have elected the DROP before retirement if they would have also satisfied the requirements for participating in the DROP for five years following the valuation date. Lastly, we assumed that members would participate in the DROP for a period of five years. Again, these assumptions are consistent with those used in our June 30, 2017 funding valuation.

All other assumptions are the same as those outlined in our June 30, 2017 funding valuation.

*Method and Assumptions Used to Measure the Adjusted Present Value without the DROP*

In order to calculate what the adjusted present value of pension benefits would have been without the DROP, we would have to know when the members would retire from LAFPP if the DROP were not in effect. This is because, everything else being equal, if members would have retired earlier, then the cost of the plan without the DROP would generally have been higher than the current plan costs.

In practice, it is impossible to know when members would have retired without the DROP<sup>7</sup>. This means that the question of whether the DROP is cost neutral will depend on a somewhat subjective assessment of when members would have retired without the DROP.

We determined the effect on the adjusted present value of pension benefits without the DROP by assuming that the DROP caused delays in retirement of either one, two, or three years. We did this by taking the current June 30, 2017 valuation results and adjusting the retirement assumption (which, as stated earlier, reflects behavior after the DROP implementation) to produce expected retirement ages that are on average either one, two, or three years earlier than predicted by the current retirement assumption.

All other assumptions are the same as those outlined in our June 30, 2017 funding valuation.

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<sup>7</sup> For example, the City adopted the Tier 5 benefit formula at about the same time they implemented the DROP program in 2002. Since the current Tier 5 retirement rate assumptions have been established using experience observed with the DROP feature, there is no Tier 5 data available to revise those assumptions to anticipate the retirement rates without the DROP.

*Cost Neutrality Results on a Prospective Basis*

**Table 1**  
**Present Value of Pension Benefits – Prospective Basis**

	(in Millions of Dollars)			
	With the DROP, current valuation assumptions	Without the DROP, assuming retirements one year earlier	Without the DROP, assuming retirements two years earlier	Without the DROP, assuming retirements three years earlier
1. Present Value of Pension Benefits for 12,024 Active Members	\$11,035	\$10,874	\$10,993	\$11,051
2. Adjustment for Member Contributions that Would Not Be Paid without the DROP <sup>8</sup>	\$0	\$50	\$109	\$179
3. Adjusted Present Value of Pension Benefits: (1) + (2)	\$11,035	\$10,924	\$11,102	\$11,230

The results may be summarized as follows:

- The value with the DROP is 101.0% of the without-DROP value if we assume the DROP delays retirements by one year.
- The value with the DROP is 99.4% of the without-DROP value if we assume the DROP delays retirements by two years.
- The value with the DROP is 98.3% of the without-DROP value if we assume the DROP delays retirements by three years.

<sup>8</sup> It should be noted that in this cost neutrality study, we have changed the method used in the prior cost neutrality studies to account for the value of the member contributions in the prospective analysis. Under the new method, we are only adjusting the present value of pension benefits in item 1 for the value of the contributions that would not have been made had the member retired earlier in the absence of the DROP. (Under the old method all of the member's contributions, including those anticipated to be made before the member was even eligible for the DROP, would have been included in the adjustment.) Also, with this change, there is no longer any difference between the basis we use to reflect the value of the member contributions under both the prospective and the retrospective analyses.

Even though, as discussed above, it is difficult to make any definitive statement about retirement behavior without the DROP, these results show that we can conclude that the adjusted present value with the DROP is reasonably close to an estimated adjusted present value of benefits for the plan without the DROP. In particular, the adjusted present value with the DROP is within 2% of what the value would be if there were no DROP under the assumption that the DROP delays retirement by between one and three years.

### **EVALUATING COST NEUTRALITY USING THE RETROSPECTIVE APPROACH**

For the retrospective study, we determined the impact of the DROP on the adjusted present value of pension benefits for the 1,303 members who were still in the DROP as of June 30, 2017. We used the demographic data for these members as reported in the June 30, 2017 valuation data.

We also determined the impact of the DROP on the adjusted present value of pension benefits for the 3,421 members who have exited (i.e., retired from) the DROP and were still collecting pension benefits as of June 30, 2017 (beneficiaries who were collecting a benefit as a survivor of a member were excluded from this study). We used the demographic data for these members as reported in the June 30, 2017 valuation data along with supplemental information as provided by LAFPP.

#### *Method and Assumptions Used to Measure the Adjusted Present Value with the DROP*

**For the 1,303 DROP members who were still in the DROP as of June 30, 2017**, we assumed that members would participate in the DROP for a total period of five years and then retire. While the member may elect DROP anytime during the year, for the purpose of this study, we applied a simplifying assumption that rounds the number of years the member has already participated in the DROP to a whole number<sup>9</sup>.

All other assumptions are the same as those outlined in our June 30, 2017 funding valuation.

The adjusted present value of pension benefits as of June 30, 2017 for these members includes:

- a) The present value of the projected lump sum paid as of the DROP exit date, plus
- b) The present value of future benefit payments paid after the DROP exit date.

**For the 3,421 DROP members who exited the DROP prior to June 30, 2017**, no retirement assumption is needed since they have already retired.

All other assumptions are the same as those outlined in our June 30, 2017 funding valuation.

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<sup>9</sup> For example, we assumed that a member who has participated in the DROP for 4.75 years as of June 30, 2017 would retire immediately instead of in one-quarter of a year. This is consistent with how these members are handled in the funding valuation.

The adjusted present value of pension benefits as of June 30, 2017 for these members includes:

- a) The lump sum paid as of the DROP exit date increased with interest to June 30, 2017 at the assumed rate for the valuation (i.e., 7.25%)<sup>10</sup>, plus
- b) The total benefit payments paid after the DROP exit date but before June 30, 2017 accumulated with interest at the assumed rate for the valuation<sup>10</sup> (we approximated this benefit stream using the actual percentage COLA increases paid between the DROP exit date and June 30, 2017), plus
- c) The present value of future benefit payments expected to be paid after June 30, 2017.

Method and Assumptions Used to Measure the Adjusted Present Value without the DROP

Similar to the prospective approach, in order to determine what the adjusted present value of pension benefits would have been without the DROP, we would need to know when the members would have retired from LAFPP if the DROP were not in effect. This is because, everything else being equal, if members would have retired earlier, then the cost of the plan without the DROP would generally have been higher than the current plan costs.

Again, in practice, it is impossible to know when members would have retired without the DROP. This means that the question of whether the DROP is cost neutral will depend on a somewhat subjective assessment of when members would have retired without the DROP.

As a result of the 2008 recession (which was accompanied by a period of relatively low price inflation) and other budgetary constraints, the actual salary increases granted to active members as observed in the ongoing actuarial valuations for several years after the 2008 recession (2009 – 2016) had mostly been less than projected by the actuarial assumptions. Since forgoing the benefit impact of any possible future salary increase is an important DROP plan design to help maintain cost neutrality of the DROP, we have applied the retrospective approach for members who actually signed up for the DROP using two alternative scenarios as to the salary increase assumptions.

The table below shows the average actual salary increases for the continuing actives with more than 25 years of service (25 years is the minimum service requirement for electing the DROP). For comparison purposes only, we also include the actual price inflation in the Los Angeles area during those years. This data was used in the Alternative #2 salary increase scenario for the 3,421 members who exited the DROP prior to June 30, 2017.

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<sup>10</sup> Note that as a simplifying assumption, no mortality adjustments were applied to calculate the benefits in a) and b) above as these 3,421 DROP members were alive as of June 30, 2017.

Year	Average Actual Salary Increase	Price Inflation in the Los Angeles Area
2002 – 2003	0.15% <sup>11</sup>	2.42%
2003 – 2004	2.49% <sup>11</sup>	3.97%
2004 – 2005	3.63%	3.61%
2005 – 2006	4.34%	5.18%
2006 – 2007	2.16%	2.92%
2007 – 2008	5.74%	5.41%
2008 – 2009	4.20%	-2.24%
2009 – 2010	0.57%	0.88%
2010 – 2011	0.24%	2.86%
2011 – 2012	0.72%	1.59%
2012 – 2013	3.35%	1.35%
2013 – 2014	4.32%	1.80%
2014 – 2015	0.69%	0.79%
2015 – 2016	1.35%	1.76%
2016 – 2017	4.53% <sup>12</sup>	2.20% <sup>13</sup>
15-Year Average (2002-2017)	2.57%	2.30%
10-Year Average (2007-2017)	2.57%	1.64%
5-Year Average (2012-2017)	2.85%	1.58%

**For the 1,303 DROP members who were still in the DROP as of June 30, 2017, we determined the effect on the adjusted present value of pension benefits without the DROP by assuming that the DROP caused delays in retirement of either one, two, or three years. We did this by assuming these members would have retired one, two, or three years earlier than the assumed DROP exit date (i.e., five years after the actual DROP entry date).**

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<sup>11</sup> For these years, as we do not have the membership data to calculate the increase only for continuing actives with more than 25 years of service, we have used the average increase in compensation for all active members with 25 or more years of service as summarized by the prior actuary in their valuation reports.

<sup>12</sup> Based on the membership data provided for the June 30, 2018 valuation, the average actual salary increase for 2017-2018 for continuing active members with over 25 years of service was 4.62%.

<sup>13</sup> Price inflation in the Los Angeles area from June 2017 to June 2018 was 4.01%.

The two alternative scenarios that we used to estimate the salary at retirement date (that is assumed to be either one, two, or three years earlier than the assumed DROP exit date) are as follows:

Alternative #1 Assumed Salary Increases: The salary at the assumed retirement date is based on the actual salary as of the DROP entry date<sup>14</sup> projected with assumed salary increases of 4.30% per year consistent with the funding valuation. The assumed increase of 4.30% is made up of 3.00% in price inflation, 0.5% in across the board real wage increase and 0.8% in merit and promotional increase for active members with more than 25 years of service.

Alternative #2 Actual Salary Increases: The salary at the assumed retirement date is based on the actual salary as of June 30, 2017 projected with assumed salary increases of 4.30% per year. For members that are assumed to have retired before the measurement date of June 30, 2017 (due to the one, two, or three year earlier condition), we used the member's actual salary as of that earlier date.

The adjusted present value of pension benefits as of June 30, 2017 for these members includes:

- a) The total benefit payments (if any) that would have been paid after the assumed retirement date but before June 30, 2017 accumulated with interest at the assumed rate for the valuation<sup>15</sup>, plus
- b) The present value of future benefit payments that would be expected to be paid after June 30, 2017, plus
- c) An adjustment for member contributions that would not have been paid (for either one, two, or three years) due to the earlier retirement.

**For the 3,421 members who exited the DROP prior to June 30, 2017,** we determined the effect on the adjusted present value of pension benefits without the DROP by again assuming that the DROP caused delays in retirement of one, two, or three years. We did this by assuming these members would have retired one, two, or three years earlier than their actual DROP exit date.

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<sup>14</sup> Actual salary as of DROP entry date is determined based on the pension benefit amount and years of service at DROP entry date that were provided in the valuation data.

<sup>15</sup> Note that as a simplifying assumption, no mortality adjustments were applied to calculate the benefits in a) above as these 1,303 DROP members were alive as of June 30, 2017.

The two alternative scenarios that we used to estimate the salary at retirement date (that is assumed to be either one, two, or three years earlier than the actual DROP exit date) are as follows:

Alternative #1 Assumed Salary Increases: The salary at the assumed retirement date is based on the actual salary as of the DROP entry date projected with assumed salary increases of 4.30% per year, consistent with the funding valuation.

Alternative #2 Actual Salary Increases: The salary at the assumed retirement date is based on the actual salary as of the DROP exit date decreased by the average actual salary increases for continuing actives with more than 25 years of service, as shown earlier.

The adjusted present value of pension benefits as of June 30, 2017 for these members includes:

- a) The total benefit payments that would have been paid after the assumed retirement date but before June 30, 2017 accumulated with interest at the assumed rate for the valuation<sup>16</sup> (we have approximated this benefit stream using the actual COLA increases paid between the assumed retirement date and June 30, 2017), plus
- b) The present value of future benefit payments that would be expected to be paid after June 30, 2017, plus
- c) An adjustment for member contributions that would not have been paid (for one, two, or three years) due to the earlier retirement.

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<sup>16</sup> Note that as a simplifying assumption, no mortality adjustments were applied to calculate the benefits in a) above as these 3,421 DROP members were alive as of June 30, 2017.

Cost Neutrality Results on a Retrospective Basis

**Table 2**  
**Present Value of Pension Benefits – Retrospective Basis**

<b>Alternative #1 - Assumed Salary Increases</b>	(in Millions of Dollars)			
	With the DROP, actual and assumed retirements	Without the DROP, assuming retirements one year earlier	Without the DROP, assuming retirements two years earlier	Without the DROP, assuming retirements three years earlier
<b>1,303 Members in the DROP who have not yet retired</b>				
1. Present Value of Pension Benefits	\$2,258	\$2,250	\$2,280	\$2,296
2. Adjustment for Member Contributions that Would Not Be Paid without the DROP	\$0	\$11	\$25	\$39
3. Adjusted Present Value of Pension Benefits: (1) + (2)	\$2,258	\$2,261	\$2,305	\$2,335
<b>3,421 Members in the DROP who have retired</b>				
4. Present Value of Pension Benefits	\$9,390	\$9,174	\$9,310	\$9,398
5. Adjustment for Member Contributions that Would Not Be Paid without the DROP	\$0	\$30	\$62	\$96
6. Adjusted Present Value of Pension Benefits: (4) + (5)	\$9,390	\$9,204	\$9,372	\$9,494
<b>1,303 Members in the DROP who have not yet retired plus 3,421 Members in the DROP who have retired</b>				
7. Total Adjusted Present Value of Pension Benefits: (3) + (6)	\$11,648	\$11,465	\$11,677	\$11,829

The results may be summarized as follows:

- The value with the DROP is 101.6% of the without-DROP value if we assume the DROP delays retirements by one year.
- The value with the DROP is 99.8% of the without-DROP value if we assume the DROP delays retirements by two years.
- The value with the DROP is 98.4% of the without-DROP value if we assume the DROP delays retirements by three years.

**Table 3**  
**Present Value of Pension Benefits – Retrospective Basis**

<b>Alternative #2 – Actual Salary Increases</b>	(in Millions of Dollars)			
	With the DROP, actual and assumed retirements	Without the DROP, assuming retirements one year earlier	Without the DROP, assuming retirements two years earlier	Without the DROP, assuming retirements three years earlier
<b>1,303 Members in the DROP who have not yet retired</b>				
1. Present Value of Pension Benefits	\$2,258	\$2,168	\$2,200	\$2,231
2. Adjustment for Member Contributions that Would Not Be Paid without the DROP	\$0	\$11	\$24	\$38
3. Adjusted Present Value of Pension Benefits: (1) + (2)	\$2,258	\$2,179	\$2,224	\$2,269
<b>3,421 Members in the DROP who have retired</b>				
4. Present Value of Pension Benefits	\$9,390	\$8,687	\$8,951	\$9,139
5. Adjustment for Member Contributions that Would Not Be Paid without the DROP	\$0	\$29	\$59	\$93
6. Adjusted Present Value of Pension Benefits: (4) + (5)	\$9,390	\$8,716	\$9,010	\$9,232
<b>1,303 Members in the DROP who have not yet retired plus 3,421 Members in the DROP who have retired</b>				
7. Total Adjusted Present Value of Pension Benefits: (3) + (6)	\$11,648	\$10,895	\$11,234	\$11,501

The results may be summarized as follows:

- The value with the DROP is 106.9% of the without-DROP value if we assume the DROP delays retirements by one year.
- The value with the DROP is 103.7% of the without-DROP value if we assume the DROP delays retirements by two years.
- The value with the DROP is 101.3% of the without-DROP value if we assume the DROP delays retirements by three years.

Under the assumed salary increases scenario (i.e., Alternative #1), there would be an increase in the adjusted present value of benefits of less than 2% which would support the conclusion that the DROP is cost neutral.

However, if we use the actual salary increases scenario (i.e., Alternative #2), there would be an increase in the adjusted present value of benefits of between 1% to 7% which would support the conclusion that the DROP is not cost neutral.

As requested, in Attachment 1 and 2, we have broken down the Adjusted Present Value of Pension Benefits for members in the DROP who have retired (line item 6 in Tables 2 and 3 above) by the actual year of DROP exit. For reference, we have also included the Adjusted Present Value of Pension Benefits for members in the DROP who have not yet retired (line item 3 in Tables 2 and 3 above) as well as the total Adjusted Present Value of Pension Benefits (line item 7 in Tables 2 and 3 above).

We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

We look forward to discussing this report with you.

Sincerely,



Paul Angelo, FSA, MAAA, FCA, EA  
Senior Vice President and Actuary



Andy Yeung, ASA, MAAA, FCA, EA  
Vice President and Actuary

EK/gxk

cc: Robyn Wilder  
Joseph Salazar

# Attachment 1

## Present Value of Pension Benefits – Retrospective Basis

(in Millions of Dollars)

Alternative #1 (Assumed Salary Increases)

3,421 Members in the DROP who have retired

Plan Year Ending of Actual DROP Exit	Value with the DROP as Percentage of Value Without the DROP						
	With the DROP, actual retirements	Without the DROP, assuming retirements one year earlier	Without the DROP, assuming retirements two years earlier	Without the DROP, assuming retirements three years earlier	Without the DROP, assuming retirements one year earlier	Without the DROP, assuming retirements two years earlier	Without the DROP, assuming retirements three years earlier
2003	178.0	178.3	178.3	178.3	100%	100%	100%
2004	303.2	303.4	306.7	306.7	100%	99%	99%
2005	456.4	453.8	460.6	464.3	101%	99%	98%
2006	576.5	568.2	576.6	583.3	101%	100%	99%
2007	1,151.7	1,070.8	1,111.9	1,137.9	108%	104%	101%
2008	955.2	899.0	939.0	963.4	106%	102%	99%
2009	838.1	789.7	816.0	845.2	106%	103%	99%
2010	648.6	624.7	631.6	645.3	104%	103%	101%
2011	596.4	593.4	594.7	596.7	101%	100%	100%
2012	636.1	636.8	645.0	644.3	100%	99%	99%
2013	584.5	591.1	601.3	605.7	99%	97%	97%
2014	487.5	494.4	500.7	505.8	99%	97%	96%
2015	653.5	649.2	655.5	664.1	101%	100%	98%
2016	830.3	839.1	840.6	843.6	99%	99%	98%
2017	493.9	512.2	513.4	509.1	96%	96%	97%
Adjusted Present Value of Pension Benefits (Table 2, line item 6)	\$9,390.1	\$9,203.9	\$9,371.8	\$9,493.7	102%	100%	99%

1,303 Members in the DROP who have not yet retired

With the DROP, assumed retirements	Value with the DROP as Percentage of Value Without the DROP						
	Without the DROP, assuming retirements one year earlier	Without the DROP, assuming retirements two years earlier	Without the DROP, assuming retirements three years earlier	Without the DROP, assuming retirements one year earlier	Without the DROP, assuming retirements two years earlier	Without the DROP, assuming retirements three years earlier	
Adjusted Present Value of Pension Benefits (Table 2, line item 3)	\$2,258.4	\$2,261.7	\$2,304.9	\$2,335.4	100%	98%	97%

1,303 Members in the DROP who have not yet retired; plus

3,421 Members in the DROP who have retired

With the DROP, actual and assumed retirements	Value with the DROP as Percentage of Value Without the DROP						
	Without the DROP, assuming retirements one year earlier	Without the DROP, assuming retirements two years earlier	Without the DROP, assuming retirements three years earlier	Without the DROP, assuming retirements one year earlier	Without the DROP, assuming retirements two years earlier	Without the DROP, assuming retirements three years earlier	
Total Adjusted Present Value of Pension Benefits (Table 2, line item 7)	\$11,648.4	\$11,465.6	\$11,676.7	\$11,829.1	102%	100%	98%

## Attachment 2

### Present Value of Pension Benefits – Retrospective Basis

(in Millions of Dollars)

Alternative #2 (Actual Salary Increases)

3,421 Members in the DROP who have retired

Plan Year Ending of Actual DROP Exit	With the DROP, actual retirements	Without the DROP, assuming retirements			Without the DROP, assuming retirements			Without the DROP, assuming retirements		
		one year earlier	two years earlier	three years earlier	one year earlier	two years earlier	three years earlier	one year earlier	two years earlier	three years earlier
2003	178.0	179.4	178.3	178.3				99%	100%	100%
2004	303.2	307.8	307.4	306.7				99%	99%	99%
2005	456.4	449.1	466.0	465.5				102%	98%	98%
2006	576.5	556.0	570.9	588.1				104%	101%	98%
2007	1,151.7	1,041.9	1,082.9	1,118.5				111%	106%	103%
2008	955.2	864.0	912.0	938.2				111%	105%	102%
2009	838.1	750.1	780.7	815.4				112%	107%	103%
2010	648.6	609.8	615.0	627.3				106%	105%	103%
2011	596.4	567.2	582.0	583.0				105%	102%	102%
2012	636.1	587.4	617.0	630.2				108%	103%	101%
2013	584.5	528.2	557.5	581.9				111%	105%	100%
2014	487.5	440.3	459.3	480.7				111%	106%	101%
2015	653.5	592.4	601.5	623.9				110%	109%	105%
2016	830.3	767.8	790.2	797.3				108%	105%	104%
2017	493.9	474.3	489.9	496.1				104%	101%	100%
Adjusted Present Value of Pension Benefits (Table 3, line item 6)	\$9,390.1	\$8,715.9	\$9,010.5	\$9,231.2				108%	104%	102%

1,303 Members in the DROP who have not yet retired

	With the DROP, assumed retirements	Without the DROP, assuming retirements			Without the DROP, assuming retirements			Without the DROP, assuming retirements		
		one year earlier	two years earlier	three years earlier	one year earlier	two years earlier	three years earlier	one year earlier	two years earlier	three years earlier
Adjusted Present Value of Pension Benefits (Table 3, line item 3)	\$2,258.4	\$2,179.3	\$2,224.4	\$2,268.9				104%	102%	100%

1,303 Members in the DROP who have not yet retired; plus

3,421 Members in the DROP who have retired

	With the DROP, actual and assumed retirements	Without the DROP, assuming retirements			Without the DROP, assuming retirements			Without the DROP, assuming retirements		
		one year earlier	two years earlier	three years earlier	one year earlier	two years earlier	three years earlier	one year earlier	two years earlier	three years earlier
Total Adjusted Present Value of Pension Benefits (Table 3, line item 7)	\$11,648.4	\$10,895.1	\$11,234.9	\$11,500.1				107%	104%	101%